

CURRENT CLAIMS

1-20. Canceled.

Claim 21: (New) A layered material, comprising:

a hard mask layer, and

a line dielectric layer, wherein the hard mask layer is applied in a liquid phase to a
line dielectric layer, wherein the hard mask layer comprises a Si-N bond,
and wherein the hard mask layer is densified such that the hard mask has
an etch resistivity that is greater than an etch resistivity of the line
dielectric layer.

Claim 22: (New) The layered material of claim 21, wherein the hard mask layer further
comprises and an etch resistivity of a via dielectric layer.

Claim 23: (New) The layered material of claim 21, wherein the line dielectric layer
comprises an organic low dielectric constant material.

Claim 24: (New) The layered material of claim 23, wherein the organic low dielectric
constant material is selected from the group consisting of a polyarylene ether, a
polyarylene, a polyimide, and cyanate ester resin.

Claim 25: (New) The layered material of claim 21, wherein application of the hard mask
in liquid phase comprises a spin-on process.

Claim 26: (New) The layered material of claim 21, wherein the hard mask layer is
formed from a polyperhydrosilazane.

Claim 27: (New) The layered material of claim 27, wherein the polyperhydrosilazane has
a structure represented by $(\text{SiH}_2\text{-NH})_n$, wherein n is an integer between 2 and
2000.

- Claim 28: (New) The layered material of claim 21, wherein the hard mask layer is densified using a process selected from the group consisting of a furnace cure process, a rapid thermal anneal process, a hot plate anneal process, and an electron beam process.
- Claim 29: (New) The layered material of claim 21, further comprising a diffusion barrier layer.
- Claim 30: (New) The layered material of claim 29, wherein the diffusion barrier layer is applied in a liquid phase to the hard mask layer.
- Claim 31: (New) The layered material of claim 29, wherein the diffusion barrier comprises a Si-N bond.
- Claim 32: (New): The layered material of claim 31, wherein the diffusion barrier layer is formed from a polyperhydrosilazane.
- Claim 33: (New): The layered material of claim 32, wherein the polyperhydrosilazane has a structure represented by $(\text{SiH}_2\text{-NH})_n$, wherein n is an integer between 2 and 2000.
- Claim 34: (New) A dual damascene structure comprising the layered material of claim 22 and a metal element.
- Claim 35: (New) The dual damascene structure of claim 34, wherein the metal element comprises copper.